

Project printer helps engineering students

By Kari Elrod

Students taking classes in the Project Lead the Way (PLTW) program are getting extra engineering knowledge with a new printer the school purchased through a grant. The printer actually melts plastic at approximately 200 degrees to make 3-D objects, giving students a better idea of what engineers actually look at in their work. The printer also helps students see if their ideas are actually going to work.

“The printed pieces make it easier to see if a project is going to work,” PLTW Teacher Jim Martinson said. “It is amazing how it all works and it really shows us how engineers work. It is amazing to have the real thing in your hand.”

Sophomores Devin Cornelius and Tyler Veldkamp are currently working on rebuilding a mouse trap with improvements. For this assignment, they had to take the mousetrap apart and document the dimensions of everything and sketch out each piece. Then, they have to pick one or more pieces that they feel they could improve and draw the improvements on a computer to prove if the redesign will work.

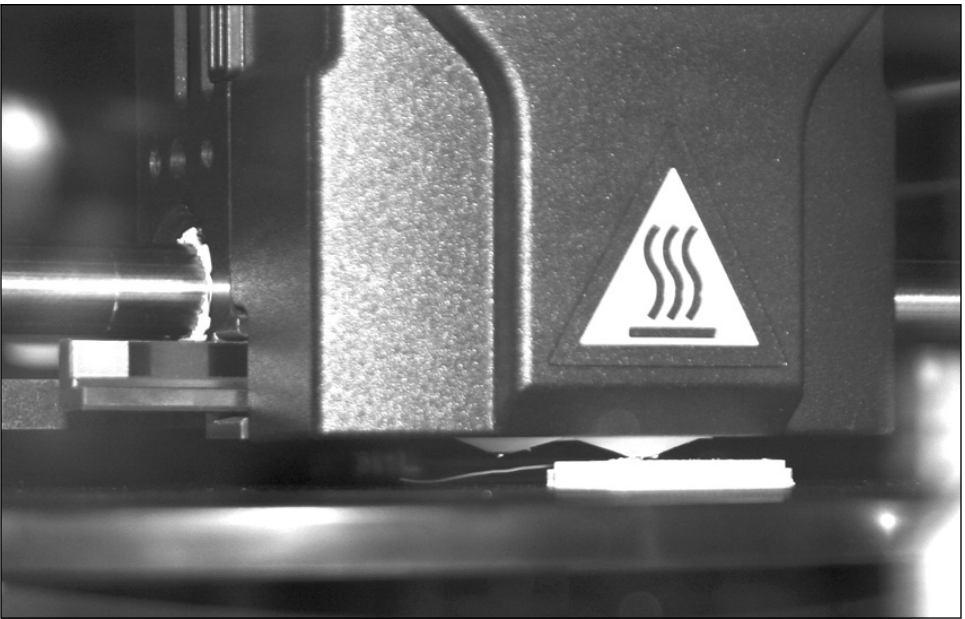
One piece of the mousetrap was printed using 41 layers of plastic while measuring approximately one half inch.

They felt they could improve the trap by making the base of the trap out of metal to make it stronger. They are also making a bigger spring so it will be more powerful.

After rebuilding the trap on the computer, they are able to print the separate pieces of the trap to see if they will fit together properly. They can also test the functionality of the trap. If their dimensions are off just slightly, the trap will not work. The new printer allows them to use this process as a way of planning the project.

Students are not allowed to print every object they make, but when a project is printed, the entire class views the function ability.

“You can visualize the project better,” Veldkamp said. “You can actually see it in 3-D rather than just looking at in on a computer. The printer also gives us an outlook of what the engineers really have to do.”



Above top: Devin Cornelius and Tyler Veldkamp work on their mousetrap project during their engineering class. Together, they drew the mousetrap on the computer and had to figure out ways to improve the trap. They had to also design the new trap on the computer and prove how the improvements would help the overall productivity.

Above: The 3-D printer layers plastic while printing a project.

Far left: Nick Sehr and Blake Beard watch the 3-D printer while it prints.

Left: A close-up of the inside of the 3-D printer while it prints numerous projects at a time. The printer can complete many projects at a time as long as they all fit on a plastic tray that is approximately one cubic foot.



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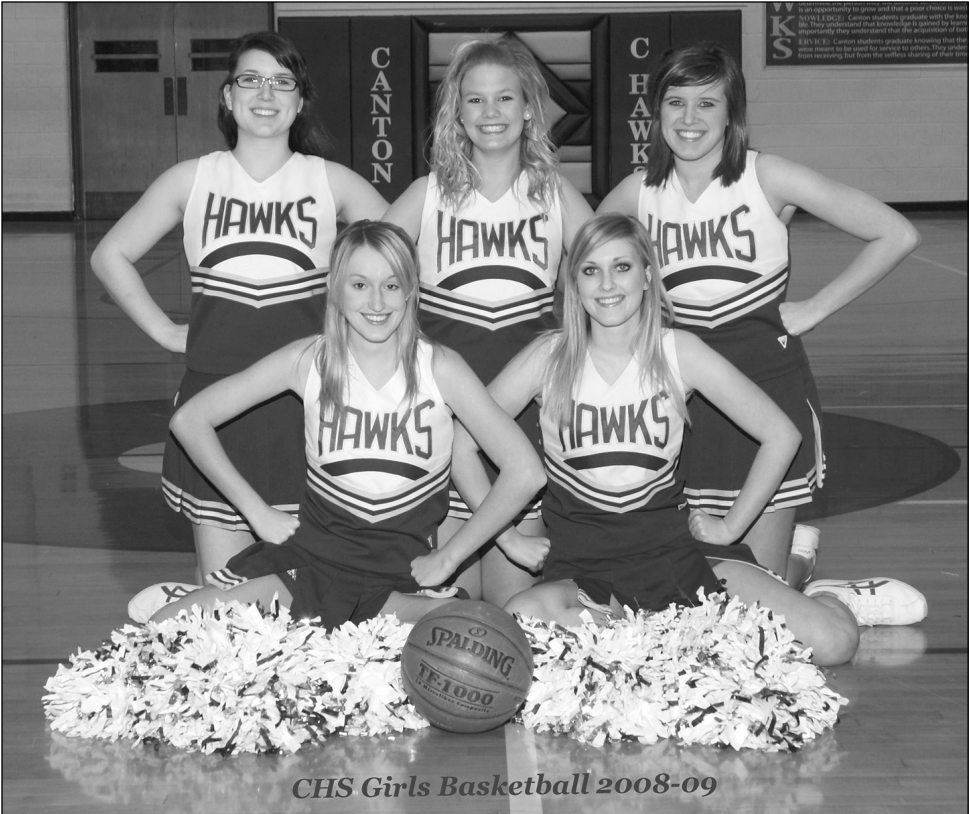
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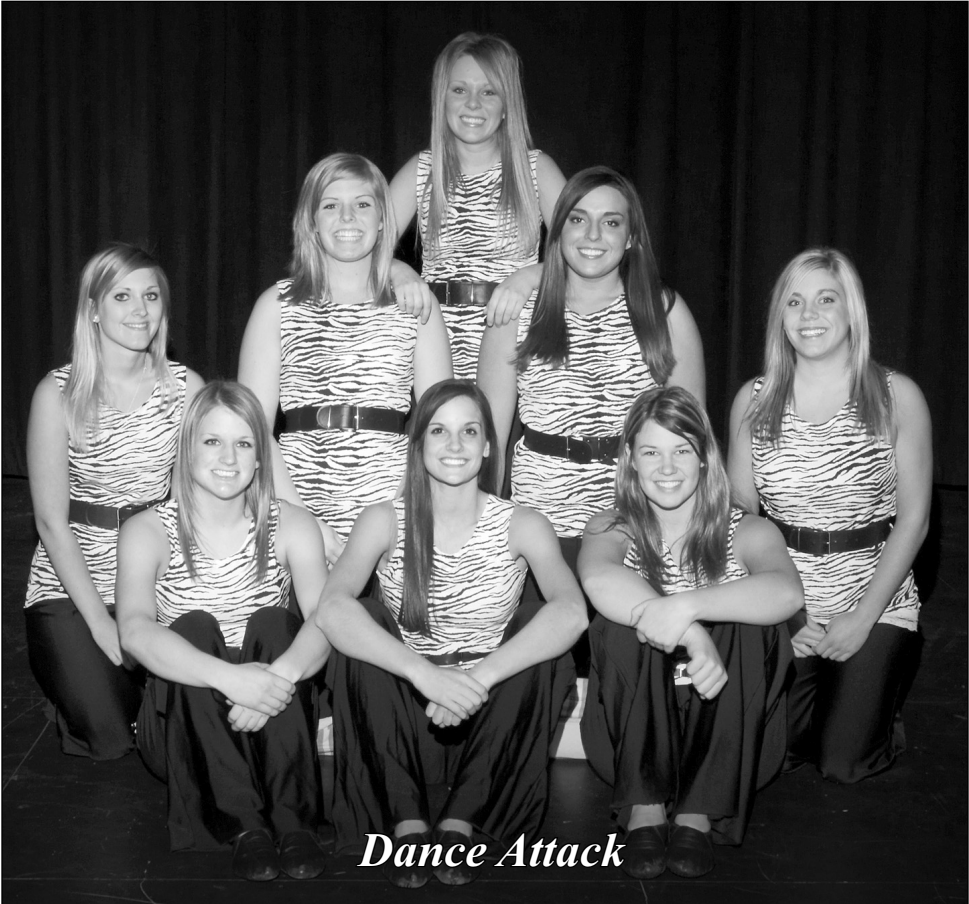
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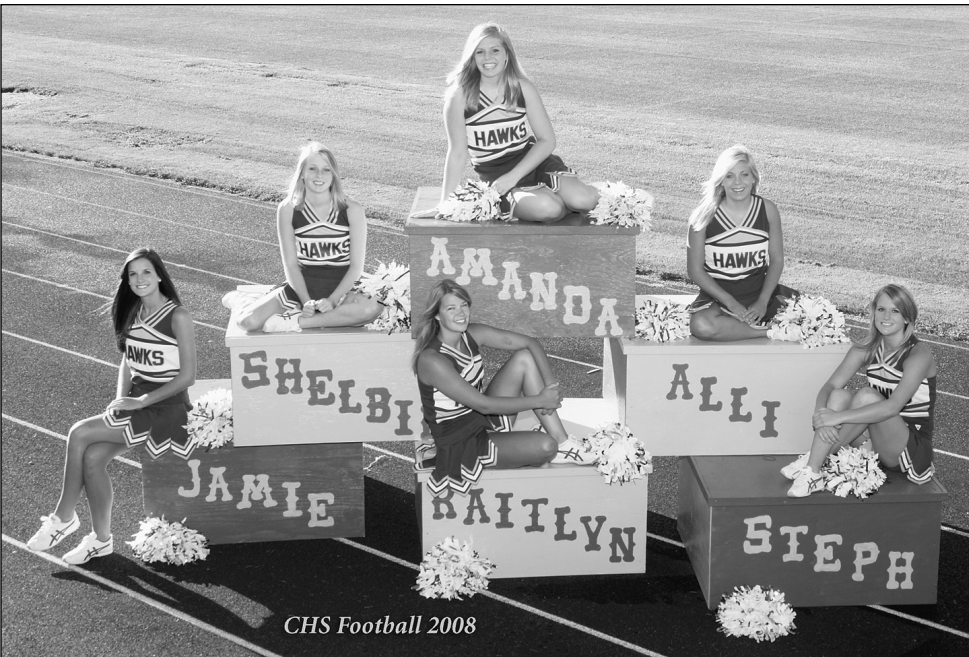
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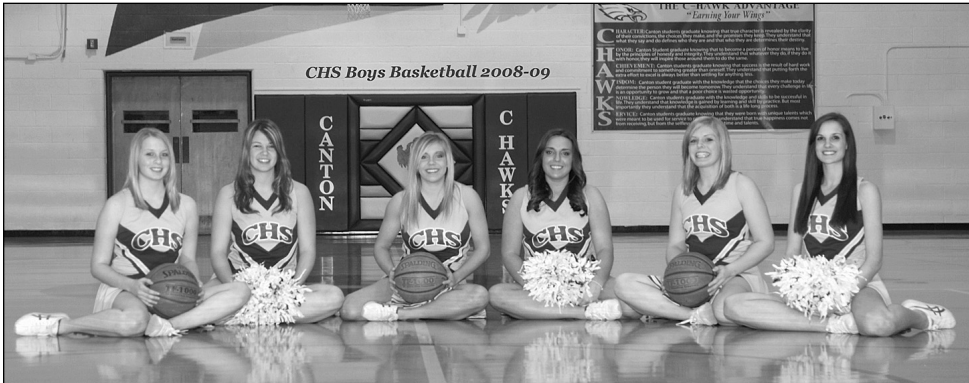
Front row: Katie Boote and Caitlin Hodne. Back: Caroline Juel, Jorrie Hart and Moriah Olsen.
Photos on this page courtesy of Rod Schneller at Schneller Photography.



Starting at far left, clockwise: Caitlin Hodne, Amanda Roskam, Bridgette Knudson, Rachel Gaeke, Alli Boyer, Kaitlyn Pederson and Steph Miller.



Starting at far left, clockwise: Jamie Lems, Shelbi Johannson, Amanda Roskam, Alli Boyer, Steph Miller and Kaitlyn Pederson.



Left to right: Shelbie Johannson, Kaitlyn Pederson, Alli Boyer, Rachel Gaeke, Amanda Roskam and Jamie Lems.



Left to right: Erika Flom, Danica Velos and Maeve Doyle.

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